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Editor

Every little helps...

“All technology should be assumed guilty until proved innocent”

David Brower

Luddites in diabetes care are now an endangered species. Diabetes UK has recently published a position statement on the use of continuous glucose monitoring (CGM), which supports the use of this type of technology in diabetes care (Diabetes UK, 2008). Recently, two major studies have highlighted the potential benefits of this technological approach to glucose monitoring for people with diabetes.

Murphy et al (2008) reported that CGM during routine antenatal care for women with diabetes can offer benefits, both to mothers and their offspring, with reductions in HbA_{1c} levels in the third trimester, lower birth weight, and less macrosomia in the newborns of the mothers who had worn the monitoring devices; however, rates of macrosomia were still increased compared to individuals without diabetes. Even though the study used “old-fashioned” CGM systems, that is, not real-time measurements, there were demonstrable benefits. It remains to be seen if these devices produce even greater benefit when combined with continuous subcutaneous insulin infusion. A previous Cochrane review of insulin pump use without glucose sensing during pregnancy suggested that it increased foetal weight-gain compared with injection therapy, although many of the studies included in the review had major limitations (Farrar, 2007).

At around the same time, the results of a multicentre US-based trial comparing real-time CGM (using a variety of devices) against home blood glucose monitoring in 322 individuals followed for 26 weeks were reported (Juvenile Diabetes Research Foundation Continuous Glucose Monitoring Study Group, 2008). The main finding was of age-related benefits from CGM, with an average 0.5% reduction in HbA_{1c} observed in individuals aged 25 years or more, but not in younger people. Rates of hypoglycaemia were low in all groups, and, unlike in the Diabetes Control and Complications Trial, did not increase as HbA_{1c} levels fell in the adult group. It is also noteworthy that at study beginning, the majority of subjects were using continuous subcutaneous insulin infusion, testing their own blood glucose levels an average of six times a day, and had HbA_{1c} levels of 8.0% or below. The majority were also “college graduates”. The results of the study are at odds with an earlier systematic review of the older interstitial monitoring technologies suggesting no benefit from CGM over traditional monitoring in type 1 diabetes (Chetty et al, 2008).

Based on these reports, perhaps the next steps would be to find out if:

- The benefits during pregnancy can be enhanced using real-time glucose sensing, perhaps in combination with insulin pump therapy.
- The benefits during pregnancy can be enhanced by using the technologies before pregnancy in appropriate women.
- The benefits of CGM are achievable in individuals who have less good glycaemic control, are less motivated in terms of traditional finger-stick blood glucose monitoring, or come from a poorer socio-economic background.

In the UK, the overriding problem remains one of access in the first place. Hopefully, based on the literature, people with type 1 diabetes will not be fobbed off with the statement “we don’t do sensors”. In these harsh economic times, it would also help if the device manufacturers could drop their prices: to borrow a phrase from an industry that thrives on competition... every little helps!

Chetty VT, Almulla A, Oduyungbo A, Thabane L (2008) The effect of continuous subcutaneous glucose monitoring (CGMS) versus intermittent whole blood finger-stick glucose monitoring (SBGM) on hemoglobin A1c (HbA1c) levels in Type I diabetic patients: a systematic review. *Diabetes Research and Clinical Practice* **81**: 79–87

Diabetes UK (2008) *Continuous glucose monitoring: Position statement*. Diabetes UK, London. Available at: www.diabetes.org.uk/cgm (accessed 05.12.2008)

Murphy H, Rayman G, Lewis K et al (2008) Effectiveness of continuous glucose monitoring in pregnant women with diabetes: randomised clinical trial. *BMJ* **337**: a1680

Farrar D, Tuffnell D and West J (2007) Continuous subcutaneous insulin infusion versus multiple daily injections of insulin for pregnant women with diabetes. *Cochrane Database of Systematic Reviews* CD005542.

The Juvenile Diabetes Research Foundation Continuous Glucose Monitoring Study Group (2008) Continuous glucose monitoring and intensive treatment of type 1 diabetes. *NEJM* **359**: 1464–76